

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>P36186WO/ECK</b>	<b>FOR FURTHER ACTION</b> see Form PCT/ISA/220 as well as, where applicable, item 5 below.	
International application No. <b>PCT/GB2005/000002</b>	International filing date (day/month/year) <b>05/01/2005</b>	(Earliest) Priority Date (day/month/year) <b>06/01/2004</b>
Applicant <b>IC INNOVATIONS LIMITED</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 6 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ The international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. ☐ With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, see Box No. I.

2. ☐ **Certain claims were found unsearchable** (See Box II).

3. ☒ **Unity of invention is lacking** (see Box III).

**4. With regard to the title,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

**5. With regard to the abstract,**

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box No. IV. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

**6. With regard to the drawings,**

- a. the figure of the **drawings** to be published with the abstract is Figure No. \_\_\_\_\_

☐ as suggested by the applicant.

☐ as selected by this Authority, because the applicant failed to suggest a figure.

☐ as selected by this Authority, because this figure better characterizes the invention.

- b. ☒ none of the figures is to be published with the abstract.

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## INTERNATIONAL SEARCH REPORT

International Application No  
PCT/GB2005/000002

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 H01M4/92 H01M4/88 H01M4/86 H01M8/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 H01M B01J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, COMPENDEX, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	WO 2004/021481 A (JOHNS HOPKINS UNIVERSITY; ERLEBACHER, JONAH; DING, YI) 11 March 2004 (2004-03-11) the whole document abstract page 4, line 25 - line 30 page 7, line 17 - line 24	1, 2, 4, 5, 7, 10-13, 16-21
X	US 6 203 925 B1 (ATTARD GEORGE SIMON ET AL) 20 March 2001 (2001-03-20)	5-10, 12-21
Y	abstract; claims 1-10; figures 1, 2 column 5, line 27 - column 6, line 35	1-4, 11
X	US 6 395 230 B1 (GUERIN SAMUEL ET AL) 28 May 2002 (2002-05-28) abstract; claims 1-5; figures 5, 6 column 3 column 6	5-10, 12-21
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Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

24 August 2005

Date of mailing of the international search report

05/09/2005

Name and mailing address of the ISA

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## INTERNATIONAL SEARCH REPORT

International Application No

PCT/GB2005/000002

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	ATTARD G S ET AL: "Mesoporous Pt/Ru Alloy from the Hexagonal Lyotropic Liquid Crystalline Phase of a Nonionic Surfactant" CHEMISTRY OF MATERIALS, AMERICAN CHEMICAL SOCIETY, WASHINGTON, US, vol. 13, 27 April 2001 (2001-04-27), pages 1444-1446, XP002306570 ISSN: 0897-4756 the whole document page 1446 page 1446	1-4,11
A	US 6 420 063 B1 (OZIN GEOFFREY A ET AL) 16 July 2002 (2002-07-16) the whole document abstract column 4, line 45 - line 60; claims 1-8	1-21
A	WO 00/69009 A (SYMYX TECHNOLOGIES, INC) 16 November 2000 (2000-11-16) pages 8-10; claims 1-37; figures 1,3 abstract	1-21
A	DATABASE COMPENDEX 'Online! ENGINEERING INFORMATION, INC., NEW YORK, NY, US; 15 May 2003 (2003-05-15), KUCERNAK ANTHONY ET AL: "Mesoporous platinum as a catalyst for oxygen electroreduction and methanol electrooxidation" XP002340660 Database accession no. E2003187450987 abstract & CHEM. ENG. J.; CHEMICAL ENGINEERING JOURNAL MAY 15 2003, vol. 93, no. 1, 15 May 2003 (2003-05-15), pages 81-90,	1-21

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2005/000002

## Box II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☐ Claims Nos.:  
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
  
2. ☒ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
  
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-4,11 and (in part) 7-10 and 12-21

- catalytic system comprising a catalyst comprising nanoporous or mesoporous palladium and an ion-exchange electrolyte;
- process for production and use thereof.

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2. claims: 5,6 and (in part) 7-10 and 12-21

- multi-component catalyst comprising a nanoporous or mesoporous palladium and one or more of platinum, iridium or rhodium, gold, ruthenium, osmium, silver, nickel, copper, cobalt, iron, chromium, lead, vanadium, tungsten, carbon, nitrogen, oxygen, sulphur, selenium, tellurium or phosphorous;
- process for production and use thereof.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/GB2005/000002

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
WO 2004021481	A	11-03-2004	US 2005112432 A1	26-05-2005
			AU 2003261462 A1	19-03-2004
			AU 2003262838 A1	19-03-2004
			WO 2004021481 A1	11-03-2004
			WO 2004020064 A2	11-03-2004
			US 2004040416 A1	04-03-2004
US 6203925	B1	20-03-2001	AU 743153 B2	17-01-2002
			AU 6303498 A	18-09-1998
			CA 2282528 A1	03-09-1998
			EP 0963266 A1	15-12-1999
			WO 9837997 A2	03-09-1998
			JP 2001513147 T	28-08-2001
US 6395230	B1	28-05-2002	AT 229100 T	15-12-2002
			AU 5378899 A	27-03-2000
			CA 2341033 A1	16-03-2000
			DE 69904349 D1	16-01-2003
			DE 69904349 T2	17-04-2003
			EP 1114207 A1	11-07-2001
			WO 0014307 A1	16-03-2000
			ZA 200101225 A	12-02-2002
US 6420063	B1	16-07-2002	AU 7576100 A	17-04-2001
			CA 2384751 A1	22-03-2001
			EP 1237829 A1	11-09-2002
			JP 2003509323 T	11-03-2003
			WO 0119752 A1	22-03-2001
WO 0069009	A	16-11-2000	AU 6888500 A	21-11-2000
			WO 0069009 A2	16-11-2000

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